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EXAMINER	
MOMPER, ANNA M	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/537,336	BRUNETIERE, BENOIT	
	Examiner	Art Unit	
	ANNA MOMPER	4165	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 January 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/02/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This correspondence is a first office action on the merits. Amendment to the claims received on 01/13/2006. Claims 1-24 are currently pending and have been considered below.

Specification

1. The disclosure is objected to because of the following informalities:

Pg.10 Ln. 14-17 recites "transmitted via the flexible link 4 via mounted on its pulley 23_1 of diameter D1, to the pulley 30 of the crankshaft V via the flexible link 5 mounted on its pulley 23_2 of diameter D2." This statement appears to contradict the image of Figure 2B. It appears as though the flexible links 4 and 5 are paired up with the incorrect pulleys and their respective diameters. Appropriate correction is required to ensure that the specification agree with the drawings.

Pg. 12 Ln. 22-23 references the variables R2 and R3 which have not been defined. It is required for the clarity of the specification that the variables R2 and R3 be explicitly defined.

Pg. 21 Ln. 19 recites "accessory 3C". 3c has been previously used to reference a pulley and C has been used to reference an accessory. This appears to be a typo and should read --accessory C--.

Appropriate correction is required.

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is

requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

3. Claim 1, 3 and 6 are objected to because of the following informalities:

Claim 1 Ln. 1 recites the claim limitation "the shaft of a combustion engine." No shaft has been previously defined in the claim, therefore this should read --a shaft of a combustion engine--.

Claim 1 Ln. 6 recites the claim limitation "the crankshaft (V)". No crankshaft has been previously defined in the claim, therefore this should read –a crankshaft (V)--.

Claim 1 recites the claim limitation "the shaft of a combustion engine" and "the crankshaft (V) of the engine (M)". These limitations appear to be referencing the same shaft, therefore it is required that consistent terminology be used and that either both read –the shaft-- or –the crankshaft--.

Claim 3 Ln. 2 recites the claim limitation "said shaft". The parent claim recites the claim limitations "the shaft of a combustion engine" and "a shaft of an alternator-generator." For clarity of the claims it is required that consistent terminology be used and that the claim limitation identifies if it is referencing the shaft of the combustion engine or that of the alternator-generator.

Claim 6 Ln. 3 recites the claim limitation "the grooves of a pulley". No grooves have been previously defined in the claim, therefore this should read –grooves-- or –a pulley having grooves--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 10-11 and 22-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999). The term "unfastened" and "unfastenable" are used in claims 10-11 and 22-24 and are used by the claims to mean "disengaged" and "disengagable", while the accepted meaning is "to make loose, to undo, to detach." The term is indefinite because the specification does not clearly redefine the term. The claim limitations as they currently stand appear to recite that the power transmission devices are removable when it appears that the applicant is trying to say that the power transmission devices are capable of engaging and disengaging with the shaft.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-6 and 10-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Man et al. (US 2002/0117860 A1).

As per claim 1, Man et al. discloses a transmission system (Figure 1) in which the shaft (3) of a combustion engine (2) is coupled via a transmission device using flexible links, particularly of the belt type (Par. 74 Ln. 17), to a shaft (8a) of an alternator-starter (8), characterized in that it has a two-state coupling device (9; Figure 4, shows a specific embodiment of 9 as 309), the states being a first state corresponding to a phase for starting the engine (starting/starter mode, Par. 13 Ln. 14-15), in which the shaft of the alternator-starter drives the crankshaft (3) of the engine with a first transmission ratio (Par. 13 Ln. 17-18), and a second state in which the crankshaft of the engine drives the shaft of the alternator-starter (Par. 13 Ln. 15-16) with a second transmission ratio (Par. 13 Ln. 18-19), and in that the first transmission ratio is higher than the second transmission ratio (Par. 13 Ln. 23-25, 28-29, the first transmission ratio is within a range where the low end is 3:2 and the second transmission ratio is within a range where the high end is 2:1; therefore, no matter where either fall within their specified range, the first transmission ratio will always be greater than the second transmission ratio).

As per claim 2, Man et al. also discloses the coupling device (309) comprises a means of detecting the direction of the driving torque (Par. 16 Ln. 1-3, 7-9, means of detecting the direction of the toque is achieved through the design of the clutches) so as

to place the coupling device in its first or second state selectively (Par. 95 Ln. 7-9, Par. 96 Ln. 1-4).

As per claim 3, Man et al. also discloses a first and a second pulley (334, 321) coaxial with said shaft (303, in this particular embodiment, the coupling device is described as being coupled to the crankshaft, however, in the alternative it is described with respect to figure 1, that the coupling device 9/309 can also be located on the shaft 8a of the alternator-starter 8; Figure 4, pulleys 334 and 321 are coaxial about 303, due to the fact that Man et al. describes the coupling device with respect to the crankshaft instead of the alternator-starter shaft, it can be understood that for the following citations that the pulleys 334 and 321 with their clutches 320a/b and 322 a/b respectively will be reversed for the stages that they engage with respect to the claimed invention), in that the transmission device has a first and a second flexible link, particularly a belt collaborating with the first and second pulleys respectively (Par. 95 Ln. 3) and mounted in such a way as to afford said first and second transmission ratios (Par. 93 Ln. 4-5, Par. 96 Ln. 9-11), and in that, when the coupling device is in the first state, the first pulley is coupled to the shaft of the alternator- starter to afford said first transmission ratio and (Par. 96 Ln 1-4, when overrunning clutches 320a and 320b are locked, the first pulley 334 is coupled to the alternator-starter via shaft 303), when the coupling device is in the second state, the second pulley is coupled to the shaft of the alternator-starter to afford said second transmission ratio (Par. 95 Ln. 1-3, 7-10, when overrunning clutches 322a and 322b are locked, the second pulley 321 is coupled to the alternator-starter via shaft 303).

As per claim 4, Man et al. also discloses the coupling device comprises a means placing the coupling device in its second state when the angular velocity of the shaft drops below the angular velocity of the second pulley (Par. 95 Ln. 7-10, 96, Ln. 1-4.the coupling device 309 utilizes overrunning clutches 322a and 322b, when the second pulley 321in communication with the combustion engine 2 via a belt, begins to rotate at a speed or angular velocity greater than that of the shaft of the alternator-generator 303, the overrunning clutches 322a and 322b will lock and cause pulley 321 to engage alternator-generator shaft 303 so that it is driven by the combustion engine 2 and first pulley 344 will disengage).

As per claim 5, Man et al. also discloses the first pulley has a diameter smaller than that of the second pulley (Par. 96 Ln. 7; Figure 4, first pulley 334 has a diameter smaller than second pulley 321).

As per claim 6, Man et al. also discloses the first and second flexible links are mounted between, respectively, the first and second pulleys and the grooves of a pulley fastened to the crankshaft of the engine (Par. 74 Ln. 2-6, 16-17; Figure 1,4; first and second pulleys 334 and 321 of coupling device 309 communicate with the engine 2 via a belt which cooperates with a pair of pulleys mounted on the engine crankshaft 3, these pulleys will have grooves similar to those shown by 334b and 321f of pulleys 334 and 321 to engage the belt between them).

As per claim 10, Man et al. also discloses the coupling device comprises a first (320a and 320b) and a second (322a and 322b) power transmission device, which can be unfastened (Par. 15 Ln. 8-9, the clutches are capable of disengaging) , which are

mounted in opposition (Par. 16 Ln. 1-5, the clutches disengage or engage depending on the direction of the torque, whether from the engine or the alternator-starter, therefore they must be mounted in opposition to each other), the first between the shaft or continuation thereof and the first pulley (Figure 4, clutches 320a and 320b are located between the shaft 303 and the pulley 334), and the second between the shaft or continuation thereof and the second pulley (Figure 4, clutches 322a and 322b are located between shaft 303 and pulley 321) and fastening or unfastening the shaft and the corresponding pulley according to their relative angular velocities (Par. 95 Ln. 7-10, Par. 96 Ln. 1-4, since the clutches coupled to the pulleys are overrunning clutches, whether the clutches engage or disengage is based on their angular velocities with respect to that of the shaft they are rotating about).

As per claim 11, Man et al. also discloses the unfastenable transmission devices comprise a free wheel, the two free wheels (320a/b and 322a/b) being mounted in opposite directions (Par. 21 Ln. 7-9).

As per claim 12, Man et al. also discloses the coupling device is arranged between the first and the second pulleys (Figure 4), and comprises at least one coupling element (416) that can be moved longitudinally parallel to the axis of said shaft between two positions corresponding to the first and second coupling states respectively (Par. 101, Ln. 11-12, Par. 103 Ln. 1-3, 6-7, In a second embodiment, Figure 5, coupling device 409 comprises a ring gear which is pushed axially into a position when in the first state and pushed in to an opposite directional axially when in the second state due to the changing of the direction of the torque flow).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. Claims 7-9, 22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Man et al. in view of Brinkmeyer et al. (US 5,539,286).

As per claim 7, Man et al. discloses all elements of the claimed invention as described above, but fails to explicitly disclose the first flexible link is mounted between the first pulley and a first groove of a double intermediate pulley the second groove of which receives the second flexible link mounted between the second pulley and a groove of a pulley fastened to the crankshaft of the engine.

Brinkmeyer et al. discloses a motor vehicle electrical system in which a first flexible link (18) is mounted between a first pulley (22) and a first groove (21) of a double intermediate pulley the second groove (23) of which receives a second flexible

link (15) mounted between a second pulley (24) and a groove of a pulley (32) fastened to the crankshaft (14) of the engine (13, Col. 4 Ln. 5—62, Col. 5 Ln. 2-10, Figure 2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the transmission system of Man et al. to include the first flexible link and a second flexible link mounted between the second pulley and a groove of a pulley fastened to the crankshaft of the engine as taught by Brinkmeyer et al. for the purpose of providing the alternator-generator with a means for being driven by the crankshaft as well as driving it while also allowing for it to supply an electrical load to other accessories.

As per claim 8, Man et al. discloses all elements of the claimed invention as described above, but fails to explicitly disclose the first groove has a diameter greater than that of the second groove.

Brinkmeyer et al. discloses a motor vehicle electrical system in which a first groove (21) has a diameter greater than that of a second groove (23; Figure 3, the first groove has a larger diameter from the shaft 25 than the second groove 23).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the transmission system of Man et al. to include the first groove has a diameter greater than that of the second groove, as taught by Brinkmeyer et al., for the purpose of creating a desired transmission ratio.

As per claim 9, Man et al. discloses a tensioning element (757a) arranged on a strand part of the second flexible link (755) between the second pulley (762) and the engine pulley (703; Par. 109, Figure 7 shows an embodiment of the overall system in

which a tensioner is used to pretension the belt between the alternator-generator and the engine).

Man et al. fails to explicitly disclose the tensioning element arranged between the intermediate pulley and the second pulley.

Brinkmeyer et al. discloses an intermediate pulley with a second groove (23) disposed between the alternator generator second pulley (24) and the engine pulley (32; Figure 2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the transmission system of Man et al. to include the tensioning element arranged on a strand part of the second flexible link between the intermediate pulley and the second pulley, as taught by Brinkmeyer et al., for the purpose of picking up slack of the belt to allow for the belt to transmit torque effectively between pulleys.

As per claim 22, Man et al. discloses the coupling device comprises a first (320a and 320b) and a second (322a and 322b) power transmission device that can be unfastened (Par. 15 Ln. 8-9, the clutches are capable of disengaging) and that are mounted to act in opposition (Par. 16 Ln. 1-5, the clutches disengage or engage depending on the direction of the torque, whether from the engine or the alternator-starter, therefore they must act in opposition to each other), the first being mounted coaxially with the first pulley and the second being mounted coaxially with the double intermediate pulley (Figure 4, first 320a and 320b power transmission devices are mounted concentrically and coaxially with the first pulley, second 322a and 322b power

transmission device are mounted concentrically and coaxially with the second pulley, Figure 4).

As per claim 24, Man et al. also discloses the first (320a and 320b) and second (322a and 322b) unfastenable transmission devices comprise a free wheel (Par. 96 Ln. 2-3, transmission devices are described as "overrunning clutches" which are the same thing as a freewheel).

12. Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Man et al. in view of Clark et al. (US 5,305,719) and further in view of Lanigan et al. (US 3,200,919).

Man et al. discloses all elements of the claimed invention as described above, however fails to explicitly disclose the longitudinally movable coupling element comprises a selector exhibiting a first helical connection, particularly a screw thread or a helical cam path collaborating with a complementary secondary helical connection fastened to the shaft of the alternator- starter and at least a lateral face bearing a power transmission element , particularly a friction lining or a dog, and facing a flank of one of the first and second pulleys.

Clark et al. discloses an engine camshaft deactivation mechanism in which a longitudinally movable coupling element comprises a selector (130) with at least a lateral face (134) bearing a power transmission element (150 and 134 in combination transmit force/power) and facing a flank (112) of one of the first pulleys (106; Col.6 Ln. 32-35, Figure 14).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the transmission system of Man et al. to include a longitudinally movable coupling element comprises at least a lateral face bearing a power transmission element and facing a flank of one of the first pulleys, as taught by Clark et al., for the purpose of reducing noise by using a friction based clutch instead of a geared clutch.

The Man et al. and Clark et al. combination fail to explicitly disclose the selector includes a first helical connection, particularly a screw thread or a helical cam path collaborating with a complementary secondary helical connection fastened to the shaft of the alternator- starter.

Lanigan et al. discloses a reversible double-drive clutch in which utilizes a first helical connection (37; Col. 2 Ln. 13), particularly a screw thread, path collaborating (Col. 2 Ln. 15) with a complementary secondary helical connection (13) fastened to the shaft (12; Col. 2 Ln. 18).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the transmission system of the Man et al. and Clark et al. combination to include a first helical connection, particularly a screw thread or a helical cam path collaborating with a complementary secondary helical connection fastened to the shaft as taught by Lanigan et al. for the purpose of reducing weight and the number of parts required by using a threaded connection between the coupling device and the shaft instead of using an actuator system or other means requiring extra gearing.

As per claim 14, the Man et al., Clark et al. and Lanigan et al. combination disclose all elements of the claimed invention as described above.

Clark et al. further discloses an engine camshaft deactivation mechanism which the selector (130) has a first lateral face (134) facing a flank (112) of the first pulley (106) and bearing a first power transmission element (150 and 134 in combination transmit force/power), and a second lateral face (132) and having an end face (132) facing towards a flank (124) of the second pulley (108) and bearing a second power transmission element (132 and 150 in combination transmit force/power) consisting of a friction lining (132). In a second embodiment Clark et al. also discloses the selector bears at least one elastic return element (34, used in a first embodiment, Col. 3 Ln. 48-49, Figure1, spring 34 is used to bias the), such as a spring, which exerts a pressing force to bias the selector away from the first pulley (10) and against a flank (16) of a second pulley (18) and also discloses a control element (30) able to move in translation parallel to the axis of said shaft (12; Col. 3 Ln. 45-46).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the transmission system of Man et al. to include the selector has a first lateral face facing a flank of the first pulley and bearing a first power transmission element, and a second lateral face bearing a control element able to move in translation parallel to the axis of said shaft and having an end face facing towards a flank of the second pulley and bearing a second power transmission element consisting of a friction lining, and in that the selector bears at least one elastic return element, such as a spring, which exerts a pressing force on the control element so that said friction lining

presses against said flank of the second pulley, as taught by Clark et al., for the purpose of providing a biasing force to assist in the shifting of engaging clutches.

As per claim 15, the Man et al., Clark et al. and Lanigan et al. combination disclose all elements of the claimed invention as described above.

Clark et al. further discloses an engine camshaft deactivation mechanism in which the selector (130) has a first (134) and a second lateral face (132) facing a flank of the first (106) and second (108) pulleys respectively (first lateral face 134 faces flank 112 of first pulley 106 and second lateral face 132 faces flank 124 of pulley 108, Figure 14) and which bear power elements (150). In a second embodiment Clark et al. also discloses an elastic return element (34, used in a first embodiment, Col. 3 Ln. 48-49, Figure1), which exerts a pressing force to bias the selector away from the first pulley (10) and toward a second (18), as well as a control element (30) able to move in longitudinal translation parallel to the axis of the shaft (12; Col. 3 Ln. 45-46), the control element having a lateral face facing (32) to wards a flank (16) of the second pulley (18) and bearing a friction lining and in that the selector bears at least one elastic return element (34, Col. 3 Ln. 48-49, Figure1), such as a spring, which exerts a pressing force to bias the selector away from the first pulley and toward the second pulley. Clark et al. does not explicitly disclose the control element 30 has a friction lining as control element 30 appears in the first embodiment (Figure 1) with toothed engagement 32 between control element 30 and flank 16 of second pulley 18 however, it could be understood that if the concept of control element 30 were applied to his first embodiment (Figure 14) and applied with respect to pulleys 106 and 108, the control element being part of

selector 130 would engage in a similar manner as faces 134 with flank face 112 and face 132 with flank 124 each containing friction linings.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the transmission system of Man et al. to include the selector having a first and a second lateral face facing a flank of the first and second pulleys respectively and bearing power elements, and a control element able to move longitudinally with respect to the selector parallel to the axis of the shaft, the control element having a lateral face facing towards a flank of the second pulley and bearing a friction lining, and an elastic return element, which exerts a pressing force on the control element so that said friction lining of the control element presses against said flank of the second pulley, as taught by Clark et al., for the purpose of providing a biasing force to assist in the shifting of engaging clutches.

As per claim 16, the Man et al., Clark et al. and Lanigan et al. combination disclose all elements of the claimed invention as described above.

Clark et al. further discloses an engine camshaft deactivation mechanism in which the selector (130) has a first (134) and a second (132) lateral face bearing a power transmission elements (150) and facing a flank of the first (106) and second (108) pulleys respectively (first lateral face 134 faces flank 112 of first pulley 106 and second lateral face 132 faces flank 124 of pulley 108, Figure 14). In a second embodiment Clark et al. discloses a control element (30) rotating as one with the selector (selector in this embodiment comprising control element 30, piece 32, and spring 34, thus control element rotates with the selector as it is part of the selector) and

which for any longitudinal position of the selector, generates a torque which is dependent on the relative angular displacement between the selector and at least one of the first and second pulleys (control element 30 generates torque when piece 32 is engaged with 16 or when it's closer to the second pulley, and generates no torque when it is closer to first pulley as it is no longer engaged to transmit torque).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the transmission system of Man et al. to include the selector has a first and a second lateral face bearing a power transmission element and facing a flank of the first and second pulleys respectively, and in that it has a control element rotating as one with the selector and which, for any longitudinal position of the selector, generates a torque which is dependent on the relative angular displacement between the selector and at least one of the first and second pulleys, as taught by Clark et al., for the purpose of providing for a locking engagement between members at the proper engine phase crank angle (Col 2. Ln. 46-47).

13. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Man et al. in view of Clark et al. and Lanigan et al, and further in view of Mueller (US 4,526,257).

As per claim 17, the Man et al., Clark et al. and Lanigan et al. combination disclose all elements of the claimed invention as described above, however fail to explicitly disclose the control element has an elastically deformable element which, at its longitudinal ends, has deformable regions which are in contact with said flank of the first

pulley and said flank of the second pulley, respectively, at least when the selector is in one longitudinal position.

Mueller discloses variable speed accessory drive in which has an elastically deformable element which (86a), at its longitudinal ends, has deformable regions which are in contact with said flank (64)of the first pulley (44) and said flank (96) of the second pulley (40), respectively, at least when the selector is in one longitudinal position (Figure 3, the deformable regions of 86a are the points at which 86a comes into contact with flank 96 and with flank 64 after crossing the gap between the two, these points are in constant contact with both flanks due to being attached directly to both flanks).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the transmission system of the Man et al., Clark et al. and Lanigan et al. combination to include an elastically deformable element which, at its longitudinal ends, has deformable regions which are in contact with said flank of the first pulley and said flank of the second pulley, respectively, at least when the selector is in one longitudinal position, as taught by Mueller, for the purpose of biasing the pulleys to an engagement or disengagement position.

14. Claims 18-19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Man et al. in view of Clark et al., and Lanigan et al. and further in view of Heimark (US 5,909,075).

As per Claim 18, the Man et al., Clark et al. and Lanigan et al. combination disclose all elements of the claimed invention as described above, but fail to explicitly disclose the control element has, on at least one lateral face, a magnetic element facing

a complementary magnetic element borne by the flank of one of the first and second pulleys.

Heimark discloses a clutch for vehicle accessories in which a control element (Figure 1A is considered the control element assembly) has, on at least one lateral face, a magnetic element (20, Figure 1A, magnetic element 20 exists on both the left-most and right-most face of the control element assembly) facing a complementary magnetic element (28) borne by the flank of one of the first and second pulleys (32, Col. 4 Ln. 35-37, 39-41, 46-47).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the transmission system of the Man et al., Clark et al. and Lanigan et al. combination to include the control element has, on at least one lateral face, a magnetic element facing a complementary magnetic element borne by the flank of one of the first and second pulleys, as taught by Heimark, for the purpose of engaging the pulley and transferring rotational force between the pulley and the shaft (Col. 4 Ln. 38-39).

As per claim 19, the Man et al., Clark et al. and Lanigan et al. combination disclose all elements of the claimed invention as discussed above.

Clark et al. further discloses an engine camshaft deactivation mechanism in which the selector (130), on two opposite lateral faces (134 and 132, on opposite ends to the left and right of selector 130), a power transmission element (150), one of them facing a flank (112) of the first pulley (106), and the other facing a flank (124) of the second pulley (108).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the transmission system of Man et al. to include the selector, on two opposite lateral faces, a power transmission element, one of them facing a flank of the first pulley, and the other facing a flank of the second pulley, as taught by Clark et al., for the purpose of providing for a locking engagement between members at the proper engine phase crank angle (Col 2. Ln. 46-47).

The Man et al., Clark et al. and Lanigan et al. combination fail to explicitly disclose the selector has an annular magnetic element arranged at its periphery and situated facing a complementary annular magnetic element fastened to the second pulley.

Heimark discloses a clutch for vehicle accessories in which a selector (Figure 1A) has an annular magnetic element arranged at its periphery (20, Figure 1A, magnetic element 20 exists on both the left-most and right-most face of the control element assembly) and situated facing a complementary annular magnetic (28) element fastened to the second pulley (32, Col. 4 Ln. 35-37, 39-41, 46-47).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the transmission system of the Man et al., Clark et al. and Lanigan et al. combination to include the selector has an annular magnetic element arranged at its periphery and situated facing a complementary annular magnetic element fastened to the second pulley, as taught by Heimark, for the purpose of providing for a locking engagement between members at the proper engine phase crank angle (Clark et al. Col 2. Ln. 46-47).

As per claim 21 the Man et al., Clark et al. and Lanigan et al. combination disclose all elements of the claimed invention as discussed above.

Clark et al. further discloses an engine camshaft deactivation mechanism in which the selector (130) has a first (134) and a second lateral face (132) bearing a power transmission element (150) and facing a flank of the first (106) and second (108) pulleys respectively (first lateral face 134 faces flank 112 of first pulley 106 and second lateral face 132 faces flank 124 of pulley 108, Figure 14) and a control element (30) able to move in translation with respect to the selector (12; Col. 3 Ln. 45-46).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the transmission system of Man et al. to include disclose the selector has a first and a second lateral face bearing a power transmission element and facing a flank of the first and second pulleys respectively, and a control element able to move in translation with respect to the selector, as taught by Clark et al., for the purpose of providing for a locking engagement between members at the proper engine phase crank angle (Col 2. Ln. 46-47).

The Man et al., Clark et al. and Lanigan et al. combination fail to explicitly disclose the selector having on at least one lateral face a magnetic element facing a complementary magnetic element borne by a flank of one of the first and second pulleys.

Heimark discloses a clutch for vehicle accessories in which a selector (Figure 1A) having on at least one lateral face a magnetic element (20, Figure 1A, magnetic element 20 exists on both the left-most and right-most face of the control element

assembly) complementary magnetic element (28) borne by a flank of one of the first and second pulleys (32, Col. 4 Ln. 35-37, 39-41, 46-47).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the transmission system of the Man et al., Clark et al. and Lanigan et al. combination to include the selector having on at least one lateral face a magnetic element facing a complementary magnetic element borne by a flank of one of the first and second pulleys, as taught by Heimark, for the purpose of providing for a locking engagement between members at the proper engine phase crank angle.

15. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Man et al. in view of Clark et al. and Lanigan et al., and further in view of Seung et al.

As per claim 20 the Man et al., Clark et al. and Lanigan et al. combination disclose all elements of the claimed invention as described above, but fail to explicitly disclose the selector has a friction element, which is situated at its periphery and is in contact with an annular region of the second pulley.

Seung et al. discloses a two speed accessory drive in which a selector (250) has a friction element (258), which is situated at its periphery (uppermost periphery of 250, Figure 2) and is in contact with an annular region (256) of the second pulley (220).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the transmission system of the Man et al., Clark et al. and Lanigan et al. combination to include the selector has a friction element, which is situated at its periphery and is in contact with an annular region of the second pulley as taught by Seung et al. for the purpose of engaging and disengaging the pulley.

16. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Man et al. in view of Brinkmeyer et al., as applied to claim 22 above, and further in view of Lanigan et al.

Man et al. discloses that the first and second transmission devices operate in opposite directions (Par. 21 Ln. 7-9).

The Man et al. and Brinkmeyer et al. combination fail to explicitly discloses the first and second unfastenable transmission devices have helical connections operating in opposite directions.

Lanigan et al. discloses a reversible double-drive clutch in which utilizes a first helical connection (37; Col. 2 Ln. 13), collaborating (Col. 2 Ln. 15) with a complementary secondary helical connection (13) fastened to the shaft (12; Col. 2 Ln. 18).

It would be obvious to one of ordinary skill in the at the time of the invention to modify the transmission system of the Man et al. and Brinkmeyer et al. combination to include the first and second unfastenable transmission devices have helical connections operating in opposite directions, as taught by Lanigan et al., for the purpose of engaging and disengaging the respective pulleys without the use of extra gearing such as an actuator.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANNA MOMPER whose telephone number is (571)270-5788. The examiner can normally be reached on M-F 7:30-5 (First Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynda Jasmin can be reached on (571) 272-6782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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